A PHOTOGRAPHIC PRIMER OF VARIANTS OF *SARRACENIA FLAVA* L.

by *Donald E. Schnell*

Several readers have asked if CPN might be able to publish color photos of various CP species variants that have been discussed, particularly *Sarracenia flava and S. purpurea.* The co-editors of CPN feel that such comparison photos might indeed be useful.

We are starting off the series with *S. flava,* and will continue it—probably in the next volume year—with *S. purpurea.* In the meantime, we would appreciate your comments about this kind of presentation, and your suggestions for future topics.

The *S. flava* variants described briefly below and pictured on the following pages are those recognized by me after some study (see primary reference 1 below, and secondary reference 2 and 3). For various reasons I feel that these variants are genetic. Readers are invited to consult my papers for details of this concept which we cannot go into here in this short descriptive article. A few reprints are still available to those who have no access to the journal.

As a result of my study in the Carolinas, I recognized five clear coloration variants, with a possible sixth, the latter being very rare in the study area and therefore not subject to combined study of large numbers of plants. However, the variant (No. 6 below and in photos and on cover) is rather common in the Gulf coast range of the species and I believe it also is genetic and include it here.

The numbers below correspond to the numbered photos that follow.

1) The most common or typical form of *S. flava* throughout its range as a whole. Note the generally yellow-green pitcher color, minimal venation comparatively, and the purple pigment splotch on the interior of the lid column. Brunswick Co., NC.

2) The rather rare all red form with deep red pigment nearly to the ground. Note that the red color carries over to the interior of the pitcher. The pigment is of course most prominent when the plants grow in open situations, tends to fade to variable degrees late in the season, and will fade rather prominently if the plants are moved in spring or early summer, but will recur the following season if conditions are good. Brunswick Co., NC.

3) The form with a metallic reddish-brown or coppery pigment of the upper lid surface and tending to extend down the external surface of the pitcher tube about a quarter its length. Note the familiar purple splotch of the lid column, and somewhat more prominent venation. Brunswick Co., NC. (Also rear cover)

4) The striking heavily veined form has a very prominent, heavy pattern of reticulate red venation over the entire pitcher exterior as well as internal portions of the hood and column. Careful observation indicates that the purple splotch of the hood column is instead a confluence of veins in this form rather than a more diffuse or laked pattern as in (1). When moved or cultivated, this variant is susceptible to the same problems as outlined in (2) above. Brunswick Co., NC. (Also front cover)

5) The form which lacks all red pigment in the pitcher, being a diffuse pale yellow-green. However, pitcher primordia (pitcher buds) are often pigmented, so there is a reduction of pigment production in mature leaves, rather than the situation with *F. heterophylla* of *S. purpurea.* Brunswick Co., NC.

6) The probable sixth genetic color pattern variant. Note the green lid but with red veins, the variable vein confluence of the lid column, and the deep

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1) Typical form

2) All red form

VARIENTS OF

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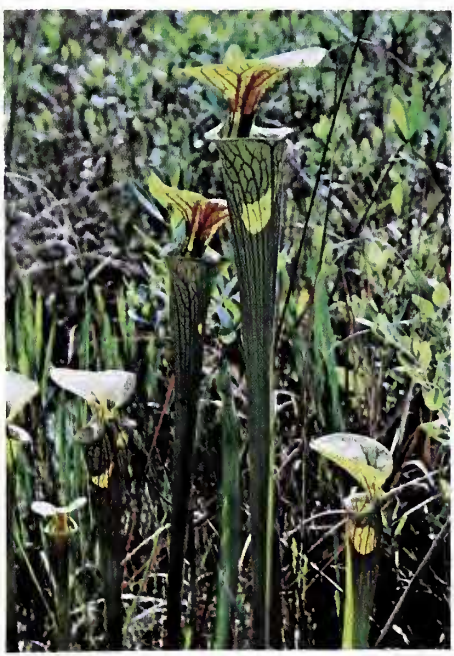
3) Upper lid with coppery pigment



4) Heavily veined form

5) Green form

6) Green lid with red veins

SARRACENIA FLAVA L.

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7) Hybrid

8) Probable hybrid between # 4 & 5

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red color of the external portion of the tube nearly to the ground. However, the interior of the pitcher is tan-green and not red (cf. 2 and 4 above). Liberty Co., FL.

7) and 8) Hybrid plants of the primary variants 1-5, photographed in the same bogs. Variant parentage may be difficult to determine. In 7, the condensation of what red pigment is there in the lid column suggests a hybrid between 1 and 5 as most likely, but there are other possibilities, including complex back and third crosses. Plant 8 is probably a cross between 4 and 5 above as suggested by the more diffuse pattern of light venation.

REFERENCES

1. Schnell, DE. 1978. *Sarracenia flava* L.: Infraspecific variation in eastern North Carolina. Castanea 43:1-20.

2._____1978. *Sarracenia* L. petal extract chromatography. Castanea 43:107-115.

3._____1978. Systematic flower studies of *Sarracenia* L. Castanea 43:211-220.

HOW TO RAISE FRUIT FLIES AS FOOD FOR CARNIVOROUS PLANTS

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The semi-closed environment of a terrarium seldom contains enough insect life to provide a hearty diet for most carnivorous plants. I have found that the inclusion of wingless fruit flies provides my plants with enough nutrition that the growth rate is markedly increased. Pitcher plants, *Dionaea* and sundews each benefit from this treatment, although the smaller sundews and larger *Dionaea* sometimes have trouble keeping their prey.

Wingless fruit flies are *Drosophila melanogaster* that have been bred for the recessive gene that causes the wings not to form. Thus, the proper term is not wingless, but vestigial winged. The recessive aspect of this genetic trait means that, if a vestigial winged fly breeds with a wild type fly, all of the first generation offspring will have wings. For this reason, it is necessary to be careful that no wild type flies enter a wingless culture during transfers to other vessels.

It is actually fairly simple to raise fruit flies, as any lover of fruit must notice during the summer. A slice of ripe banana with a dash of yeast is a sufficient medium, but, as the banana decomposes, it becomes runny and often results in drowned fruit flies. A much better medium can be made of a mixture of corn syrup, corn meal, malt and a trace of fungicide to prevent mold formation. This medium can be further improved by the addition of more nutrients (note: the corn meal is to provide a solid substrate—mashed potato flakes could also be used).

The best and easiest to prepare medium is a dry commercial medium which is prepared by adding an equal volume of water and a few grains of active yeast. This medium can be obtained from biological supply houses in multiples of one liter volumes (one such place that does mail order business is Carolina Biological Supply Co., Burlington, N.C., 27215, or Gladstone, OR. 97027).

Fruit flies are very prolific and have a very short life cycle (that is, the period of time from the egg to the adult). The life cycle involves four stages. At 20 degrees centigrade (room temperature) the fly is in the egg and larval stages for eight days, and in the pupal stage for six days. The fly emerges an adult, and has a fairly long life expectancy. The female will begin laying eggs in a few days, and can lay 500 eggs in ten days